In the claims

Please amend claims1 and 17 as follows. Please cancel claims 4-7 and 9-10. Please add new claims 18-24.

1. (Currently Amended) A method of enhancing the operation of a diesel fuel combustion system, the method comprising:

supplying a diesel fuel to a diesel fuel combustion chamber in a diesel fuel combustion system, wherein the diesel fuel comprises an additive that includes a manganese-containing compound, wherein the manganese-containing compound is an organometallic compound selected from the group consisting of alcohols, aldehydes, ketones, esters, anhydrides, sulfonates, phosphonates, chelates, phenates, crown ethers, naphthenates, carboxylic acids, amides, acetyl acetonates and mixtures thereof;

combusting the fuel in the combustion chamber to produce at least one byproduct comprising the manganese-containing compound;

the manganese-containing compound being supplied in an amount effective to complex with the at least one combustion byproduct,

wherein the diesel fuel combustion system comprises an engine oil and the engine oil has at least 3% mass, soot loading;

whereby the diesel fuel combustion system performance is enhanced wherein the enhancement is selected from the group consisting of increased diesel engine lubricating oil life, reduced engine wear, and reduced fuel consumption.

2. (Original) The method described in claim 1, wherein the diesel fuel is selected from the group consisting of diesel fuel, biodiesel, biodiesel - derived fuel, and synthetic diesel fuel, and mixtures thereof.

3. (Original) The method described in claim 1, wherein the diesel fuel contains less than about 30 ppm of sulfur.

4. (Canceled).

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Original) The method described in claim 1, wherein the manganese-containing compound comprises about 5 to about 30 mgMn/liter of the fuel.

9. (Canceled)

10. (Canceled)

11. (Original) The method described in claim 1, wherein the combustion byproduct is selected from the group consisting of particulates, soot, unburned soot, uncombusted hydrocarbons, partially-combusted hydrocarbons, combusted hydrocarbons, and oxides of nitrogen and sulfur.

12. (Original) The method described in claim 1, wherein the diesel fuel combustion system comprises one or more of the following components:

exhaust gas recirculation systems, either hot or cooled; variable-scroll turbochargers/variable geometry turbochargers; common-rail fuel injection systems; hydraulically-activated electronically-controlled unit injectors; turbocharged and after cooled combustion air systems; elevated mean fuel injection pressure and injection rate shaping capable systems; electronic engine control systems for combustion air, fuel and exhaust; variable valve actuation systems; homogenous charge compression ignition systems; and low friction coatings on engine surfaces.

13. (Original) A method as described in claim 1, wherein the engine oil is formulated to accommodate at least 3% mass, soot loading.

14. (Original) A method as described in claim 1, wherein the engine oil is formulated to prevent wear in the presence of at least 3% mass, soot loading as categorized by API CH-4 engine tests.

15. (Original) A method as described in claim 1, wherein the engine oil has at least 6% mass, soot loading.

16. (Canceled)

17. (Currently Amended) A method of enhancing the operation of a diesel fuel combustion system, the method comprising:

supplying a diesel fuel comprising an additive that includes a manganese-containing compound to a diesel fuel combustion chamber in a diesel fuel combustion system;

combusting the fuel in the combustion chamber to produce at least one byproduct comprising the manganese-containing compound;

the manganese-containing compound being supplied in an amount effective to complex with the at least one combustion byproduct;

wherein the diesel fuel combustion system comprises one or more of the following components:

exhaust gas recirculation systems~~, either hot or cooled; variable-scroll turbochargers/variable geometry turbochargers~~; common-rail fuel injection systems; hydraulically-activated electronically-controlled unit injectors; ~~turbocharged and after cooled combustion air systems;~~ elevated mean fuel injection pressure and injection rate shaping capable systems; ~~electronic engine control systems for combustion air, fuel and exhaust~~; variable valve

actuation systems; homogenous charge compression ignition systems; and low friction coatings on engine surfaces;

whereby the diesel fuel combustion system performance is enhanced wherein the enhancement is selected from the group consisting of increased diesel engine lubricating oil life, reduced engine wear, and reduced fuel consumption.

18. (New) A method of enhancing the operation of a diesel fuel combustion system, the method comprising:

supplying a diesel fuel to a diesel fuel combustion chamber in a diesel fuel combustion system, wherein the diesel fuel comprises an additive that includes a manganese-containing compound, wherein the manganese-containing compound is an inorganic manganese compound selected from the group consisting of fluorides, chlorides, bromides, iodides, oxides, nitrates, sulfates, phosphates, nitrides, hydrides, hydroxides carbonates and mixtures thereof;

combusting the fuel in the combustion chamber to produce at least one byproduct comprising the manganese-containing compound;

the manganese-containing compound being supplied in an amount effective to complex with the at least one combustion byproduct,

wherein the diesel fuel combustion system comprises an engine oil and the engine oil has at least 3% mass, soot loading;

whereby the diesel fuel combustion system performance is enhanced wherein the enhancement is selected from the group consisting of increased diesel engine lubricating oil life, reduced engine wear, and reduced fuel consumption.

19. (New) The method described in claim 18, wherein the diesel fuel is selected from the group consisting of diesel fuel, biodiesel, biodiesel - derived fuel, and synthetic diesel fuel, and mixtures thereof.

20. (New) The method described in claim 18, wherein the diesel fuel contains less than about 30 ppm of sulfur.

21. (New) The method described in claim 18, wherein the manganese-containing compound comprises about 5 to about 30 mgMn/liter of the fuel.

22. (New) . A method as described in claim 18, wherein the engine oil has at least 6% mass, soot loading.

23. (New) The method described in claim 18, wherein the combustion byproduct is selected from the group consisting of particulates, soot, unburned soot, uncombusted hydrocarbons, partially-combusted hydrocarbons, combusted hydrocarbons, and oxides of nitrogen and sulfur.

24. (New) The method described in claim 18, wherein the diesel fuel combustion system comprises one or more of the following components:

exhaust gas recirculation systems, either hot or cooled; variable-scroll turbochargers/variable geometry turbochargers; common-rail fuel injection systems; hydraulically-activated electronically-controlled unit injectors; turbocharged and after cooled combustion air systems; elevated mean fuel injection pressure and injection rate shaping capable systems; electronic engine control systems for combustion air, fuel and exhaust; variable valve actuation systems; homogenous charge compression ignition systems; and low friction coatings on engine surfaces.